



COR-0797-60

31 March 1960

MEMORANDUM FOR : Chief, Development Branch, DFD

SUBJECT : Recommendations for Improving the CORONA Camera for the 1961 Follow-on Program

REFERENCE : (A) Evaluation of ITEK Proposal for a Follow-on High Acuity Camera, COR-0725-60, dtd. 8 January 1960

(B) CORONA Follow-on Camera (1961), COR-0792-60, dtd. 29 March 1960

1. In view of the short lead time (11-12 months) to accomplish design changes and fabrication of equipments, it is felt that it is necessary to outline only those areas that should be considered in asking for proposals to improve reliability and capability of the present CORONA camera. A complete new design or radical changes that would be outside the area of product improvement might necessitate long periods of testing, resulting in serious delay in the flight program.

2. Consideration should be given to the following areas when considering product improvement for the present camera:

- (a) reduction in weight
- (b) simplicity
- (c) reliability
- (d) increased capability, to include increased coverage and increased ground resolution

3. Since weight is always of prime consideration when placing a body in orbit, every effort should be made to make the camera as light as possible. *Moreover* However, the basic camera structure should be considered for redesign to improve rigidity and alignment of rollers in order to eliminate present tie rods and other brackets that have been added since the original design in order to insure reliability.

NRO  
review(s)  
completed.

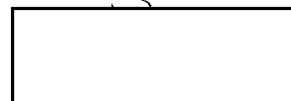
4. In the area of simplicity, consideration should be given to ease of threading and loading the configuration and elimination of the skewed rollers. Although elimination of present skewed rollers is most desirable and considered important in order to obtain maximum photographic quality, it is not the desire to complicate the film path or jeopardize operation by incorporating an unproven technique. ITEK's proposal for the C" camera seems to do this by utilizing an air twist in place of the skewed rollers. It is the feeling of this office that reliability can be improved and insured by an improved main camera structure, a simplified film path, slower scan rates and film speeds. Also of great advantage would be the increase of cycling rates. This might be achieved through use of wider film and optical system with a greater half angle.

5. Through product improvement, increased capability can probably only be achieved through optical improvement and an increase in film load. Optical improvement would be through an increase in resolution on low contrast targets (1000-1). The film load should be increased by using 5" film since this will increase coverage by a factor of 2 and also reduce cycling rate by 50 per cent.

6. Any effort that exceeds the above recommendations for the 1961 follow-on camera is considered in the realm of new design and should not be attempted at this time. ITEK's proposal for the C" prime camera which includes (a) elimination of film platen, (b) a continually rotating lens, and (c) elimination of the skewed rollers by use of an air twist must be considered in the realm of new design and should be considered only for a complete new camera design and directed toward the 1962-1963 program.

7. It is recommended that when, and if, proposals are requested from ITEK, FCIC, and EK that the above recommendations be made available to them for their information, consideration, and guidance.

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DEV BR/DPD

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